



**Broad Market Potential for 10 GE
- Update**

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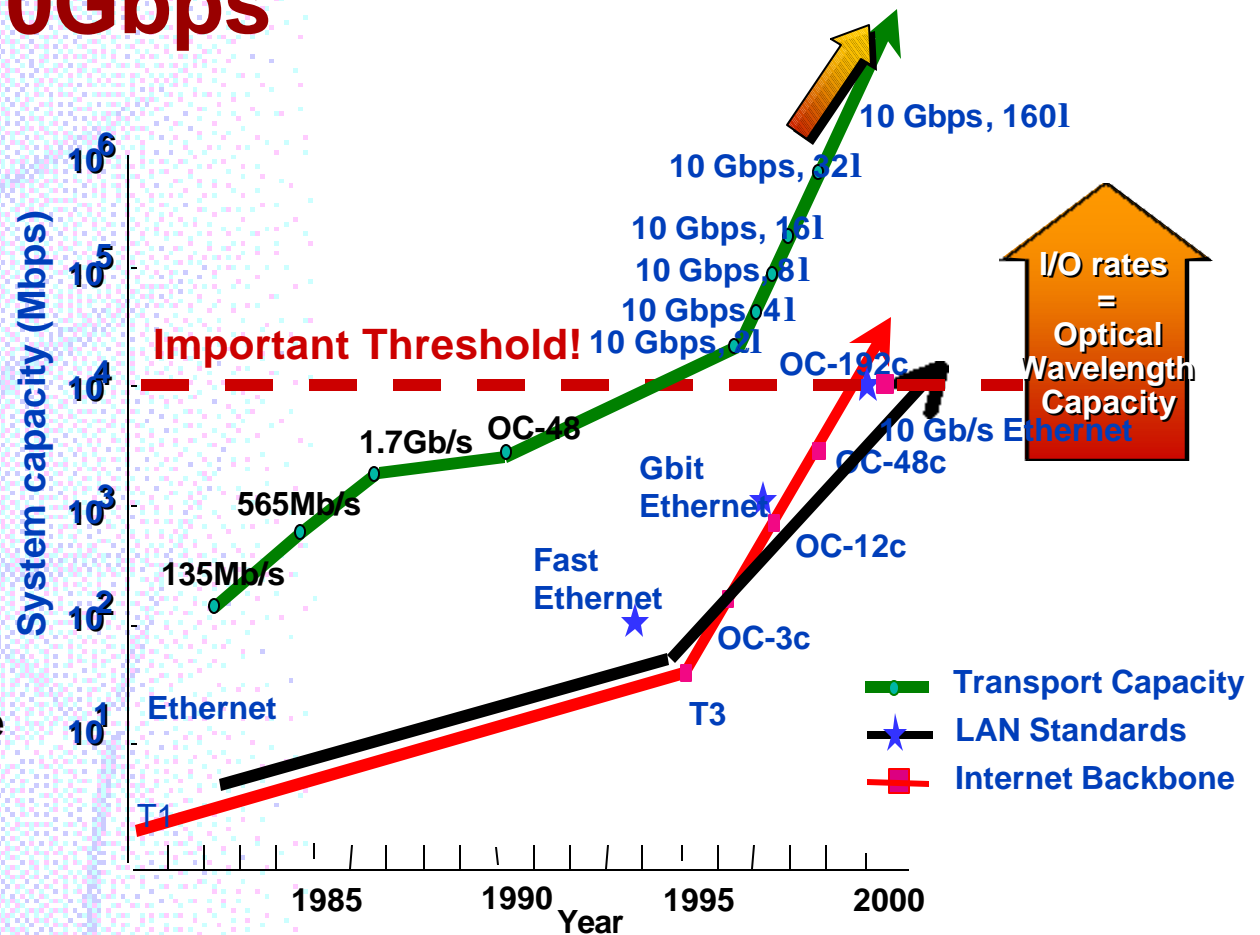
March, 2000

Market Trend....

- ★ **The Optical DWDM, Ethernet and Internet speeds are all converging on 10Gb speeds. Unification at 10Gb granularity is inevitable, logical and provides a seamless end-to-end LAN, MAN and WAN network.**
- ★ **The market need for 10 GE in the WAN is NOW, and as such significant portion of up front costs will be absorbed by the WAN players leaving the LAN players to enjoy a low cost fast TTM product introduction.**
- ★ **10 Gigabit Ethernet revenue in WAN is the Revenue, for 2-3 years.**

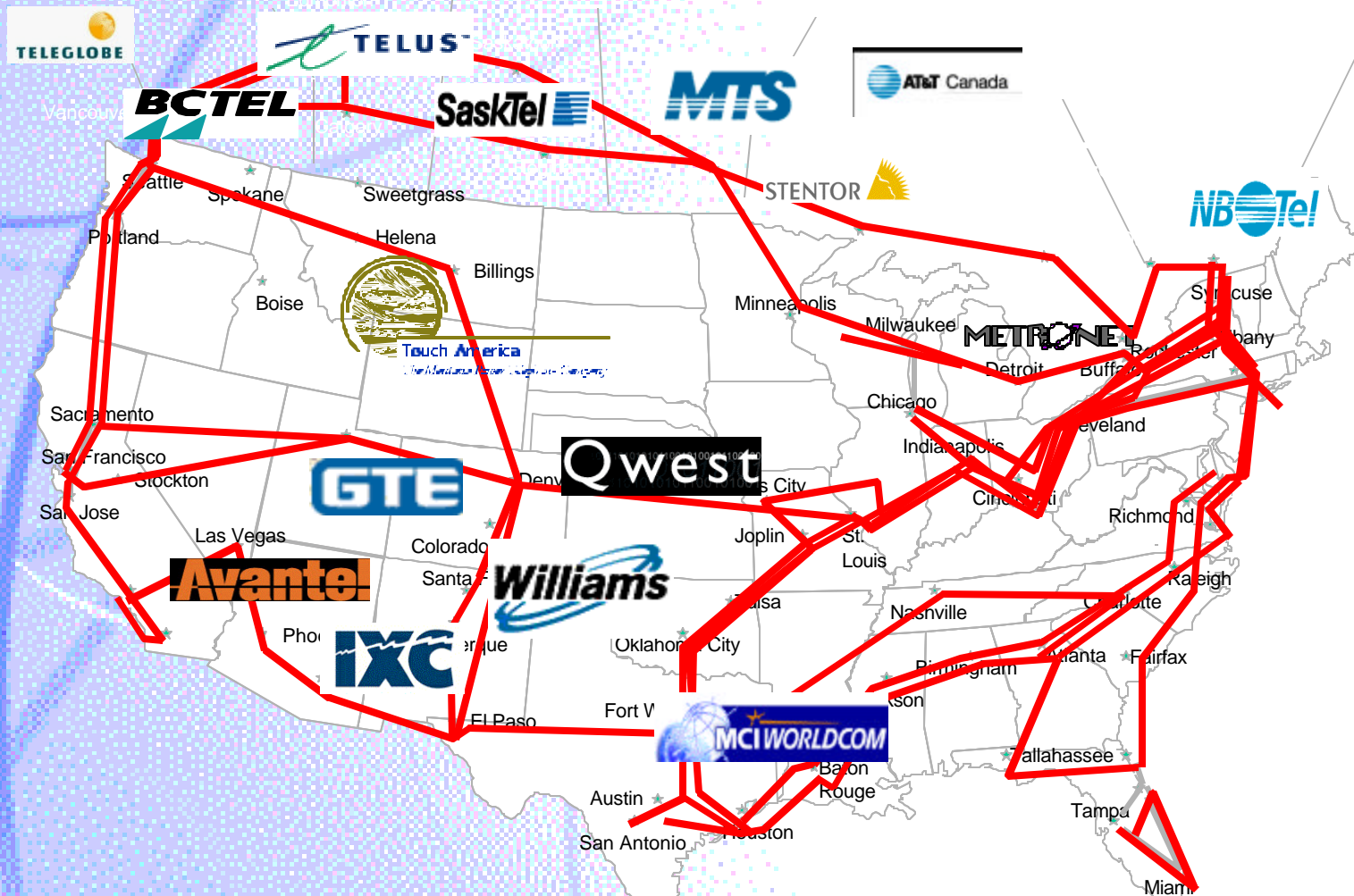
Unification at 10Gbps

- All are running or approaching 10Gb port speeds
- A common LAN and WAN standard provides a more seamless network
- A more seamless network provides more revenue opportunities for both the LAN and the WAN
- And WDM will provide even higher capacity at this granularity



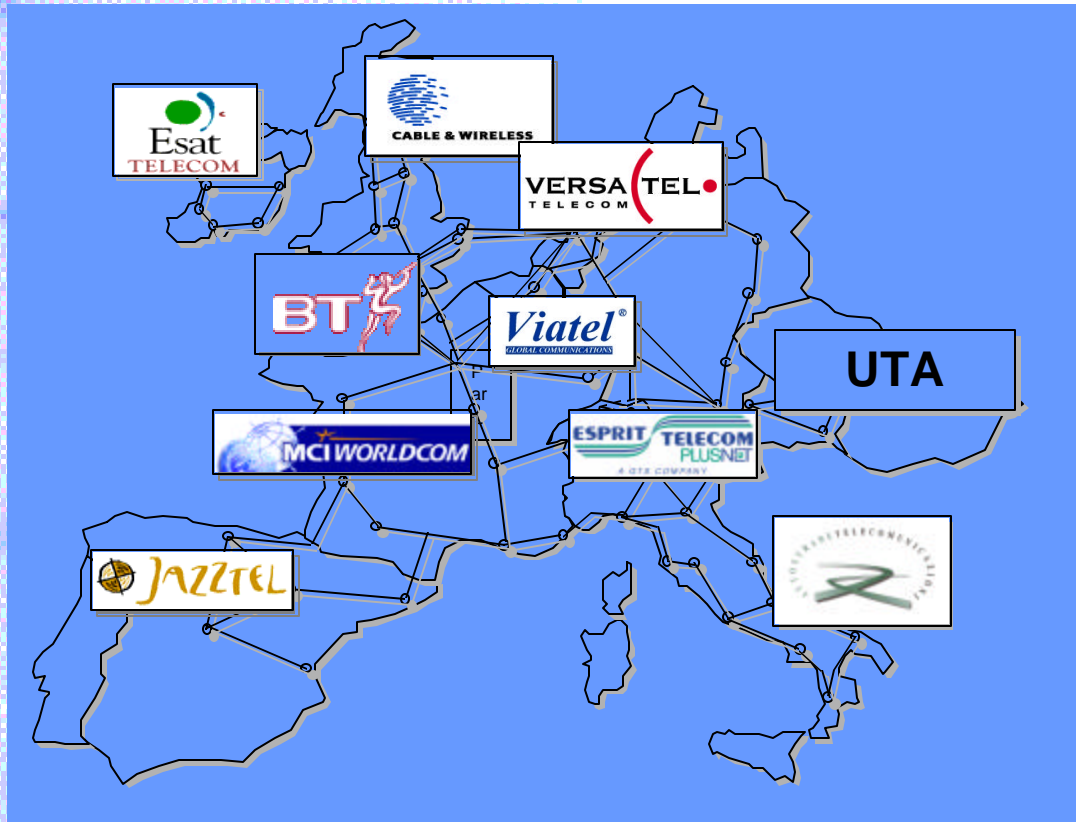
Unification is logical and inevitable!

DWDM 10 Gbps Deployment In North America



> 48% of DWDM Network Deployment
> 36% of the Internet Backbone In North America

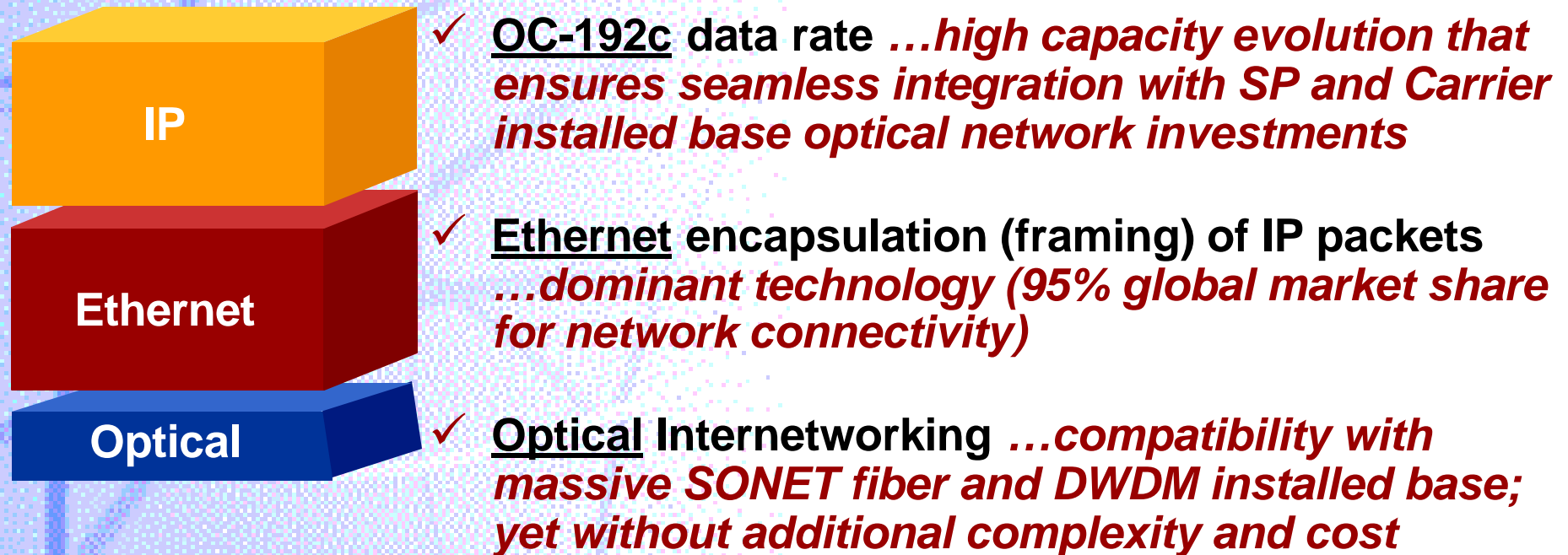
...10 Gbps Deployment In Europe and China



7 of Last 9 Pan-European Builds, and
All China Optical Transport from now on...

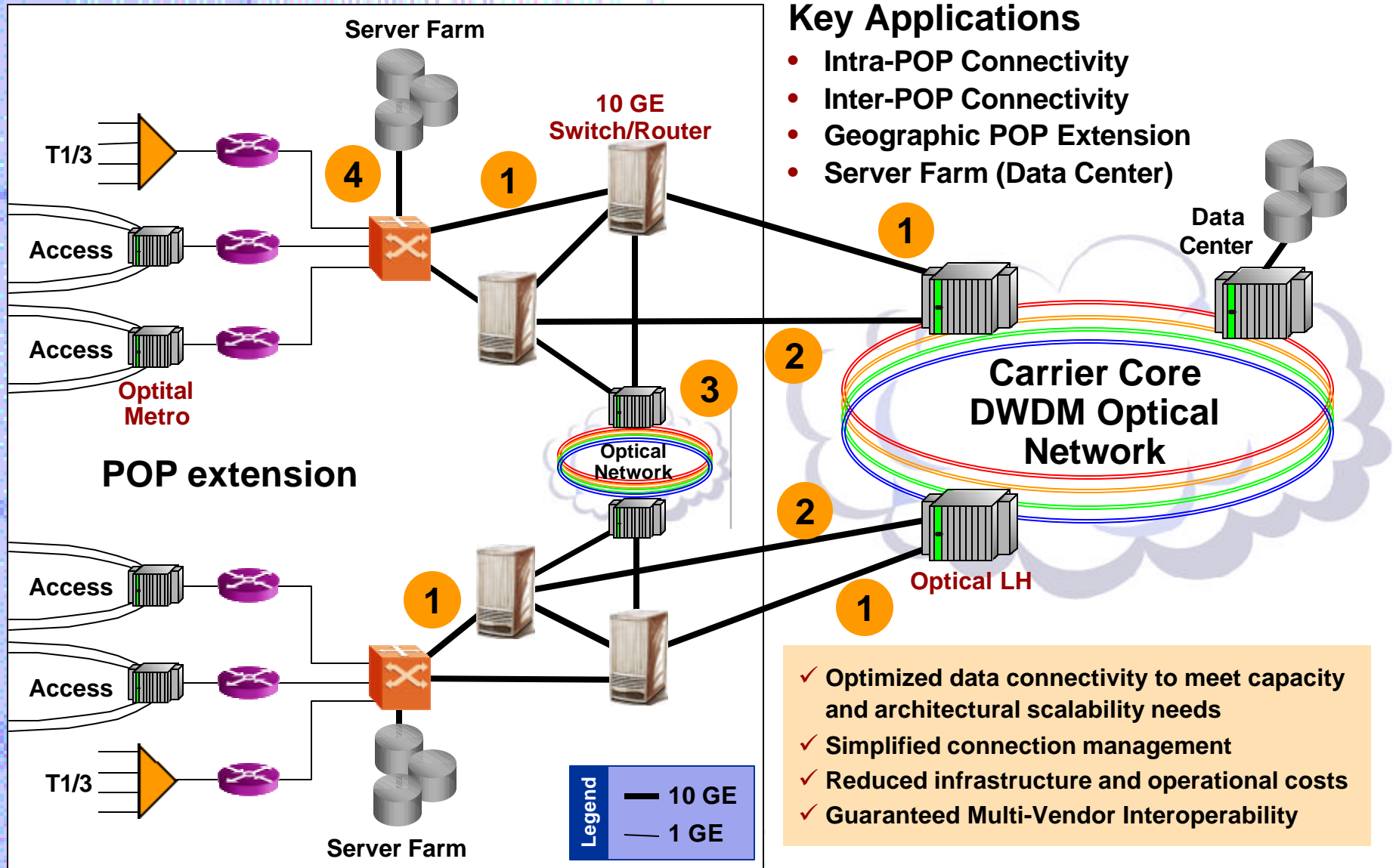
IP over DWDM - in real world

10 Gigabit Ethernet is the carrier...



Creating a tighter bond between data networking equipment and the fundamental plumbing of the optical Internet.

The POP in the near Future



End-to-End Ethernet Connectivity

Ethernet in the Campus

Ethernet Access to MAN

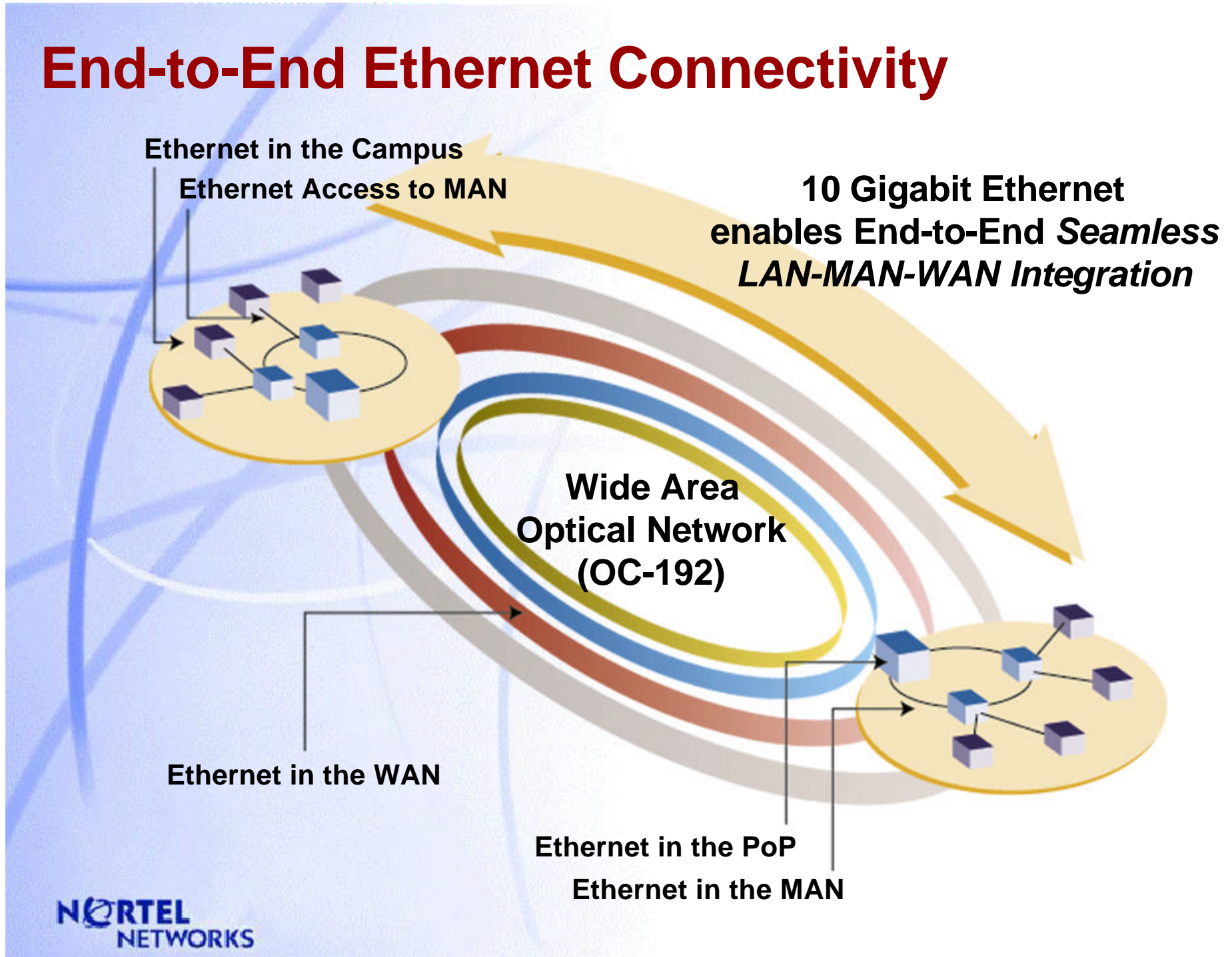
**10 Gigabit Ethernet
enables End-to-End Seamless
LAN-MAN-WAN Integration**

**Wide Area
Optical Network
(OC-192)**

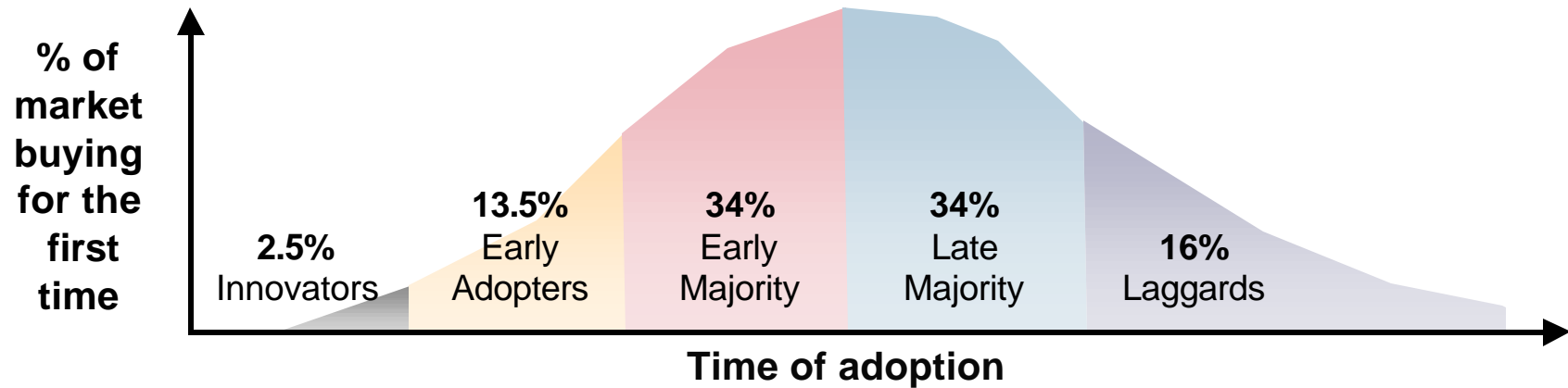
Ethernet in the WAN

Ethernet in the PoP

Ethernet in the MAN



Market Timing



	1997	1998	1999	Late 2000	Mid 2001	2002
1 GE (Enterprise)	Gb Backbone and Server Connectivity			Multi-Gig Backbone and Server Connectivity		
10 GE (Enterprise)	2001	Early 2002	2003/4	2005/6	2006/7	Backbone and Server Connectivity
10 GE (Carrier + SP)	2000 (WAN)	2001 (MAN)	Early 2002	2002/3	2004/5	Intra/inter PoP Connectivity, Metro Ring Interconnection

Carrier+SP will be impacted first by 10 Gigabit Ethernet

Significant Market Impact, by Year 2002

- **Close to 160,000 Wide Area Network 10 GE switching ports* will be required**
- **Global installed base DWDM optical infrastructure supports between 3.3 and 5 million 10 Gb ports****
- **In service provider market, over 200,000 server area networks will need network links at 10 Gbps****

*(Sources: *Dataquest, **manufacturing estimates, ***Gartner Group Study)*

10 GE is positioned to take off in WAN!

Market Studies - Dataquest 12/6/99

- “Intra-point of presence (POP) 10-Gigabit Ethernet connections are NOW needed by the service providers”
- “Even when viewed as a logical upgrade from Gigabit Ethernet, the implementation of 10-Gigabit Ethernet at the backbone and across the servers of LANs will not occur in the enterprise for years”

	2000	2001	2002	2003	2004
Revenue (\$m)	0.0	71.4	713.7	1,784.3	3,568.5

Conclusions - “Show me the Power!”

- × **The LAN, MAN and WAN data rates are converging at 10Gb/s - with DWDM taking WAN rates beyond this**
- × **It’s magic time to unify the local, metro and wide area networks, and 10 Gb/s Ethernet is a logical candidate**
- × **By defining a WAN compatible 10 Gb/s Ethernet standard this committee is to “Ethernet the World”!**

Conclusions - “Show me the Money!”

- × Carrier and SP space will provide 10 GE revenue potentials in next few years: components, and systems
- × WAN applications are NOW, LAN is 2003+
- × Millions of 10 GE ports are need to connect to millions of 10 Gb DWDM ports installed
- × The market for 10GE will worth over \$ 3.5 billion in year 2004, overwhelmingly in WAN.